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CLAIM AMENDMENTS

1 to 4. *Cancelled*

5. (*Withdrawn*) An isolated, purified or recombinant peptide encoded by the polynucleotide of claim 20.

6 to 8. *Cancelled*

9. (*Withdrawn*) An isolated, purified or recombinant antibody, specifically immunoreactive under immunologically reactive conditions, to the protein of claim 5.

10 to 19. *Cancelled*

20. (*Currently amended*) An isolated, purified or recombinant polynucleotide encoding a telomerase reverse transcriptase protein, wherein said protein:

- (i) has at least 90% sequence identity to SEQ. ID NO:2; and,
- (ii) has telomerase catalytic activity when associated with telomerase RNA component ; and
- (iii) contains at least one of the following amino acid motifs:
 - Motif T: W-X₁₂-FFY-X₁-TE-X₁₁-R-X₃-W;
 - Motif 1: LR-X₁-IPK;
 - Motif 2: R-X₁-I-X₁₅-K;
 - Motif A: P-X₃-F-X₃-D-X₄-YD;
 - Motif B: Y-X₄-G-X₂-QG-X₃-S;
 - Motif C: DD-X₁-L; or
 - Motif D: A-X₂-F-X₁-K;

wherein X_n is a sequence of unspecified amino acids of length "n".

21. (*Previously presented*) An isolated, purified or recombinant polynucleotide encoding a telomerase reverse transcriptase protein having the amino acid sequence of SEQ. ID NO:2.

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22. (Currently amended) An isolated, purified or recombinant polynucleotide comprising the sequence of SEQ. ID NO:1 or fragment thereof that encodes a protein having telomerase activity when associated with telomerase RNA component; wherein the protein contains at least one of the following amino acid motifs:

- Motif T: W-X₁₂-FFY-X₁-TE-X₁₁-R-X₃-W;
- Motif 1: LR-X₁-IPK;
- Motif 2: R-X₁-I-X₁₆-K;
- Motif A: P-X₃-F-X₄-D-X₄-YD;
- Motif B: Y-X₄-G-X₂-QG-X₂-S;
- Motif C: DD-X₁-L; or
- Motif D: A-X₂-F-X₁₈-K;

wherein X_n is a sequence of unspecified amino acids of length "n".

23. (Previously presented) An isolated cell transfected with the polynucleotide of claim 20, or progeny thereof.

24. (Previously presented) An isolated cell transfected with the polynucleotide of claim 21, or progeny thereof.

25. (Previously presented) An isolated cell transfected with the polynucleotide of claim 22, or progeny thereof.

26. (Previously presented) An expression vector comprising the polynucleotide of claim 20.

27. (Previously presented) An expression vector comprising the polynucleotide of claim 21.

28. (Currently amended) A mouse cell An isolated mouse cell in which an endogenous mTERT gene in the cell gene encoding mouse telomerase reverse transcriptase (mTERT) has been mutated by recombinant means, or progeny of said cell.

29 to 30. Cancelled

31. (Currently amended) The polynucleotide of claim 20, encoding a protein that contains at least 10 consecutive amino acids of SEQ. ID NO:2 that is between about 50 and 150 kDa.

32. (Currently amended) The polynucleotide of claim 20, encoding a protein that contains the mouse Motif T shown in Figure 5 (SEQ. ID NO:2).

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33. *(Currently amended)* The polynucleotide of claim 20, encoding a protein that contains the mouse Motif 1 and Motif 2 shown in Figure 5 (SEQ_ID NO:2).
34. *(Currently amended)* The polynucleotide of claim 20, encoding a protein that contains the mouse Motif A, Motif B, Motif C, and Motif D shown in Figure 5 (SEQ_ID NO:2).
35. *(New)* The polynucleotide of claim 20, encoding a protein that contains at least two of said motifs.
36. *(New)* The polynucleotide of claim 20, encoding a protein that contains at least four of said motifs.
37. *(New)* The polynucleotide of claim 20, encoding a protein that contains all of said motifs.
38. *(New)* The polynucleotide of claim 37, wherein the motifs occur in the order indicated in claim 20.
39. *(New)* The polynucleotide of claim 20, which hybridizes to a nucleic acid having the mTERT cDNA sequence in SEQ ID NO:1 at 5°C below T_m in 1 M sodium ion concentration, wherein T_m is the melting temperature under the same conditions of said nucleic acid hybridized to a complementary polynucleotide.
40. *(New)* An isolated, purified or recombinant polynucleotide encoding a protein that contains SEQ_ID NO:2, or a fragment thereof that has telomerase reverse transcriptase activity when associated with telomerase RNA component.
41. *(New)* A method of producing a telomerase protein, comprising expressing the polynucleotide of claim 20 in a host cell.
42. *(New)* A method of producing a telomerase protein, comprising expressing the polynucleotide of claim 39 in a host cell.
43. *(New)* A method of producing a telomerase protein, comprising expressing the polynucleotide of claim 40 in a host cell.